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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5

DATE: DEC 30 1991

SUBJECT: Request for Concurrence on the Superfund Close Out Report for Johns-Manville Site in Waukegan, Illinois

FROM: David A. Ullrich, Director
Waste Management Division
ORIGINAL SIGNED BY
DAVID A. ULLRICH

TO: Valdas V. Adamkus
Regional Administrator

By this memorandum I am recommending that you authorize the Remedial Action Completion for the Johns-Manville Site in Waukegan, Illinois by executing the attached Superfund Close Out Report.

The Superfund Close Out Report was prepared in accordance with the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. Section 9601 et seg., as Public Law 99-499, the National Contingency Plan, 40 CFR Part 300, and Agency policy. I believe that approval of the Superfund Close Out Report is a proper exercise of your delegated authority. By signing this document, you will initiate the NPL deletion process.

Please feel free to contact me should you have any questions.

Attachment

12/31/91.

for RL
12/30/91

BR
12/30/91

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SUPERFUND SITE CLOSEOUT REPORT
JOHNS-MANVILLE - WAUKEGAN, ILLINOIS

I. SUMMARY OF SITE CONDITIONS

A. SITE BACKGROUND

The Johns-Manville Site is on the National Priorities List (NPL) and is located along Lake Michigan in east-central Lake County, at Greenwood Avenue in the city of Waukegan in northeastern Illinois (southern half of Section 10, Township 45N, Range 12E).

The disposal area, or site, covers approximately 120 acres of the approximately 300 acres of land owned by the Manville Service Corporation (Manville), formerly the Johns-Manville Sales Corporation. The site is bordered on the east by Lake Michigan, on the north by Illinois Beach State Park, on the south by an electrical generating station, and on the west by the Manville manufacturing buildings and an old city dump site. There are no residential dwellings within one-half mile of the site, and approximately 200 homes within one mile of the western edge of the site. The site is located along the eastern edge of the City of Waukegan, which has a population of 67,650, according to the 1980 census.

The majority of the site is elevated with respect to the surrounding land area, which is a flat, gently sloping marsh. The maximum elevation of the site is approximately 30 feet above natural ground. The surface topography of the site is irregular. In general, the outer portions of the waste disposal area slope away from the center of the site. Part of the southern portion of the site slopes into a closed depression, the miscellaneous disposal pit. The southwestern portion of the site slopes toward the west, and the eastern portion of the site slopes gradually downward toward Lake Michigan. Surface runoff at the site flows into the various ponds of the wastewater treatment system and the disposal pit on-site and to Lake Michigan. An intermittent creek starts approximately 3000 feet north of the site and flows northeast to the Dead River, which discharges to Lake Michigan.

The Manville plant presently produces and has produced a wide range of building materials. Waste materials from production processes containing primarily asbestos, and to a lesser extent, lead, chrome, thiram, and xylene have been deposited at the site since about 1922. Other contaminants, including methanol, naptha,

toluene, mineral spirits, various acids, fuels, and pesticides, have been disposed of at the site; however, these additional contaminants have not been identified as being disposed of in considerable quantities at the site. Presently, no asbestos or lead is used in manufacturing processes and is, therefore, no longer deposited on-site.

Wastes from production processes have been deposited in a variety of on-site pits, many of which are no longer in use. The active waste disposal area is the miscellaneous disposal pit, in which miscellaneous, non-asbestos-containing wastes are deposited. The miscellaneous disposal pit is managed as an on-site landfill which requires daily cover on top of all deposits. The Manville facility's wastewater treatment system is also located on the site. Fibrous materials in the facility's wastewater are settled out over time in the series of unlined ponds and waterways which comprise the wastewater treatment system. The deposited materials are periodically dredged, transported to and deposited in the miscellaneous disposal pit. In addition, waste materials were used to comprise the north, south, and most of the western site slopes, or boundaries.

A permit was issued in 1973 by the State of Illinois for process wastewater management using a closed-loop recycle system. To date, there have been no documented violations of this permit. Airborne asbestos monitoring was conducted at the site in 1973 and 1982 by the Illinois Institute of Technology Research Institute and the U.S. EPA Field Investigation Team, respectively. The 1973 study did not provide conclusive evidence of asbestos air contamination, but the 1982 study indicated that concentrations of asbestos fibers in the 2.5 to 15 micrometer range were elevated on-site and downwind of the site and concentrations of asbestos fibers less than 2.5 micrometers were elevated on-site. The site was listed on the NPL in December 1982.

B. REMEDIAL INVESTIGATION/FEASIBILITY STUDY RESULTS

The Final Remedial Investigation (RI) Report, including the Risk Assessment, was prepared by a consultant for Manville, under an Administrative Order on Consent with U.S. EPA, and was issued in July 1985. The findings of the RI Report and Risk Assessment were as follows:

AIR

Elevated levels of asbestos fibers were detected on site. A subsequent air study for lead and Total Suspended Particulates (TSP) indicated that levels of lead were well within the lead National Ambient Air Quality Standard (NAAQS); however, TSP levels exceeded the primary NAAQS on one occasion and the secondary NAAQS on three occasions.

GROUNDWATER

Conclusions of the groundwater analyses were questionable due to the number and location of the monitoring wells and the performance of a single round of sampling. Arsenic was detected in quantities greater than the applicable health based water quality criteria. Asbestos concentrations were elevated but were below the maximum contaminant level for asbestos.

SURFACE WATER

Levels of all contaminants in Lake Michigan were within applicable standards; however, conclusions of surface water analyses were questionable for the reasons listed above regarding location of wells and number of samples.

SOIL and WASTE BORINGS

Asbestos and lead levels were elevated in soil and waste borings.

C. RECORD OF DECISION

The Remedial Investigation indicated the need to take action to prevent releases of asbestos and TSP into the air and to perform additional groundwater and surface water monitoring at the site and provide a mechanism for remediation of any contaminants that were detected in concentrations that would present an endangerment to public health and the environment.

To address these needs, the Record of Decision (ROD) signed by U.S. EPA on June 30, 1987, with concurrence from the Illinois EPA, included the following components:

* Waste materials/soil in the inactive waste disposal areas of the site will be graded and covered with 24 inches of compacted non-asbestos-

containing soil. The cover will consist of six inches of sand overlain by 12 inches of clay. Six inches of topsoil will be placed over the clay, and a vegetative cover will be grown and maintained.

* The asbestos disposal pit will be closed in June 1989 and provided with 24 inches of cover as described above.

* The miscellaneous disposal pit, sludge disposal pit, and wastewater treatment system will continue to operate; asbestos is no longer used in the manufacturing processes at the facility.

* Any asbestos-containing material generated from reconstruction activities at the facility after June, 1989 will be disposed of off-site in an approved landfill.

* A soil cover monitoring program will be developed to ensure that no asbestos reaches the surface of the cover and becomes releasable to the air in the future.

* Where feasible, one layer of nominal 12-inch thick riprap will be placed on the interior slopes of settling basins. Four-inch thick bedding material will be used to prevent erosion of soil beneath the riprap. All other exposed interior slopes will be provided with 24 inches of soil cover as described above.

* A contingency plan will be developed to ensure that no asbestos-containing sludge is dredged from the wastewater treatment system in the future.

* The north, west, and south slopes of the waste disposal area will be sloped with non-asbestos-containing soil to a ratio of two horizontal to one vertical and provided with 24 inches of soil cover with vegetation as previously described.

* A minimum of 24 inches of non-asbestos-containing soil will be placed on top of all dikes and dike roadways on-site. In addition, heavily used dike roadways will be provided with eight inches of compacted gravel, and lightly travelled dike roadways with four inches of compacted gravel.

* A ground water and surface water detection monitoring system will be established on-site to ensure that any contaminants that leach from site are detected. The monitoring and reporting of results to U.S. EPA and IEPA will continue for a minimum of 30 years. A contingency plan will be developed to ensure that appropriate remedial action will be taken if contaminant concentrations that would pose a threat to public health and the environment are detected.

* An air monitoring program will be established at the waste disposal area to determine the levels of asbestos, lead, TSP, and chromium in the air around the site. The monitoring and reporting of results to U.S. EPA and IEPA will continue for a minimum of 15 years after the initiation of on-site construction activities for the remedial action. A contingency plan will be developed to ensure that appropriate remedial action will be taken if contaminant levels exceed the applicable air standards or health-based criteria.

* Debris from the beach and southwest portion of the waste disposal area will be cleaned up.

* The eastern site boundary will be fenced to limit access.

* Additional warning signs will be placed along the site perimeter.

* The small ditch connected to the south end of the east ditch will be closed.

* The active waste disposal areas (miscellaneous disposal pit, sludge disposal pit, and wastewater treatment system) will be sampled to verify Manville's claims that no asbestos has been deposited in the miscellaneous disposal pit, no asbestos-containing sludge is near the surface of the sludge disposal pit, and no hazardous wastes are entering the wastewater treatment system.

* The open area in the northeast corner of the miscellaneous disposal pit will be closed.

* Peripheral ditches will be constructed to collect site runoff and channel it to the industrial canal.

* Dikes will be constructed at the depressed area along the north side of the industrial canal to prevent industrial canal water from migrating off-site.

A Consent Decree for Remedial Design (RD) and Remedial Action (RA) was entered on March 18, 1988, whereby Manville would design, construct, and maintain the RA outlined in the ROD, under U.S. EPA and IEPA (for the State of Illinois) oversight.

D. REMEDIAL ACTION CONSTRUCTION ACTIVITIES

On October 17, 1988, after thorough review and a dispute resolution proceeding regarding same, including the assessment and collection of $38,000 in stipulated penalties, the Revised Amended Remedial Work Plan was approved by U.S. EPA and IEPA. On-site construction activities began on November 28, 1988.

Remedial Construction work was shut down from January through February 1989 due to improper (excessive) grading of asbestos-containing material (ACM) in the northwest corner of the disposal area. On August 4, 1989, U.S. EPA filed a Supplemental Complaint to recover penalties for violations of the Consent Decree. The subsequent litigation was settled out of court on September 13, 1990. The settlement included the payment of a $165,000 penalty to U.S. EPA by Manville. Another result of the shutdown and enforcement action by U.S EPA was that Manville drafted a Work Plan Supplement, which outlined specific grading and fill activities to be conducted in each sub-area of the site. The Work Plan Supplement was reviewed and approved by U.S. EPA on May 5, 1989.

During the Remedial Construction, additional areas were discovered where ACM was located at or near the ground surface. Following sampling of these areas, Manville submitted three additional Work Plans (the Second Work Plan Supplement, Second Work Plan Supplement - Amendment A, and Third Work Plan Supplement) to address these additional areas of contamination. These additional Work Plans were reviewed and approved by U.S. EPA and IEPA.

Remedial Construction activities under the Revised Amended Remedial Work Plan and Work Plan Supplement were completed by May 31, 1990, as mandated by the Consent Decree. Remedial Construction activities under the Second Work Plan Supplement and Second Work Plan

Supplement- Amendment A were completed by the December 31, 1990 and May 31, 1991 deadlines, respectively. Remedial Construction activities under the Third Work Plan Supplement were completed on August 21, 1991, which was the final completion date for Remedial Construction at this site (the deadline for completion of the Third Work Plan Supplement Remedial Construction activities was October 8, 1991).

A final inspection was held on September 10, 1991 by U.S. EPA, Manville representatives, and representatives of WW Engineering and Science, U.S. EPA's oversight contractor for the project. U.S. EPA and WW Engineering and Science representatives determined that the Remedial Action had been successfully executed.

On December 17, 1991, Manville submitted a Remedial Action Report signifying successful completion of construction activities. The report documents and discusses the numerous changes to the Remedial Construction work that occurred throughout the nearly three-year construction period. Including the additional work that was performed under the Second Work Plan Supplement, Second Work Plan Supplement - Amendment A, and Third Work Plan Supplement, the total Remedial Action cost was approximately $15,000,000.

E. COMMUNITY RELATIONS ACTIVITIES

The community relations activities conducted during the RD/RA for the Johns-Manville site included a press release and public meeting to kick off Remedial Construction activities and a press release announcing that U.S. EPA was suing Manville for Consent Decree violations involving improper grading of ACM. Additionally, U.S. EPA issued a press release in early October 1991 and plans to hold a site tour and/or public meeting to announce the completion of Remedial Construction in Spring 1992. The public reaction to U.S. EPA's actions at the site has been minimal.

II. DEMONSTRATION OF QA/QC FROM CLEANUP ACTIVITIES

Manville performed the remedial action in compliance with all U.S. EPA and State of Illinois sample quality assurance/quality control (QA/QC) procedures and protocol, which are outlined in the approved Revised Amended Remedial Work Plan. Wastewater, waste, groundwater, surface water, and air sampling and analysis were performed by Manville's contractor, under U.S. EPA and/or IEPA oversight. The analytical sample analysis was performed by laboratories participating in U.S. EPA's Contract Laboratory Program.

Accordingly, only U.S. EPA analytical procedures and protocol were used. Documentation of the sampling and analytical methods used is contained in the Revised Amended Remedial Work Plan, dated June 1988, with September 1988 revisions.

The QA/QC program utilized throughout the remedial action was sufficiently rigorous and was adequately complied with to enable the determination by U.S. EPA that all analytical results reported are accurate to the degree needed to assure satisfactory execution of the remedial action consistent with the ROD.

III. MONITORING RESULTS

The Revised Amended Remedial Work Plan, Attachment C, Quality Assurance Project Plan and Attachment G, Health and Safety Plan, detailed a rigorous sampling and analytical program for the remedial action for the 1) protection of the off- site public, 2) protection of on-site workers, and 3) confirmation of compliance with remedial action objectives. The sampling program included the following components:

* Daily perimeter air monitoring for asbestos.

* Daily personnel sampling of exclusion zone workers for asbestos.

* Pre - construction perimeter air monitoring for asbestos, for comparison purposes.

* Quarterly groundwater and surface water sampling for asbestos, lead, total chromium, total arsenic, aluminum, antimony, PCBs, PBBs, volatile organics, and semi - volatile organics including acid/base/neutral compounds.

* A one time only sampling of the miscellaneous disposal pit and sludge disposal pit for asbestos and the process wastewater treatment system for total chromium, lead, total arsenic, antimony, aluminum, and a full scan of HSL volatiles, semi - volatiles, PCBs, and PBBs.

* Sampling of cover materials for asbestos.

A U.S. EPA employee or representative was on-site during all construction activities involving grading or disturbing ACM to check for the generation of visible emissions. Work was shut down many times due to visible emissions being observed, and not allowed to restart until the situation was

remedied by Manville, usually through the application of additional water to the ACM. U.S. EPA's oversight contractor periodically checked the methodology used by Manville's contractor to determine the thickness of the soil cover to ensure that the specified minimum cover thickness requirements were met. Lastly, follow-up action was taken in the miscellaneous disposal pit and sludge disposal pit because asbestos was detected in several of the samples taken in each pit. Twenty-four inches of soil, consistent with the ROD requirements, was placed over the entire surface of both pits. The miscellaneous disposal pit continues to be used for disposal of non-asbestos-containing wastes generated by the Manville plant.

Documentation of the complete results of all sampling and analysis activities is contained in the Monthly Progress Reports for the site and the site file located at the Manville plant in Waukegan, Illinois.

IV. SUMMARY OF OPERATION AND MAINTENANCE

O & M activities required in the Revised Amended Remedial Work Plan are: soil cover inspections, monitoring, and corrective actions; groundwater monitoring; surface water monitoring; and air monitoring. With the exception of air monitoring, all monitoring programs will be conducted periodically for a minimum of 30 years, at which time U.S. EPA will evaluate the need for further monitoring. Air monitoring will be conducted for 15 years and then reevaluated by U.S. EPA. The Revised Amended Remedial Work Plan also includes a ground water and surface water contingency plan and a provision for development of a soil cover contingency plan if ACM migrates upward into the top layers of the soil cover. These contingency plans provided for appropriate remedial action if contaminant concentrations that would pose a threat to public health and the environment are detected in the downgradient monitoring wells or the Lake Michigan sampling locations and to ensure that no ACM reaches the surface of the cover and becomes releasable in the future.

On December 11,1991, U.S. EPA and IEPA approved the "October 1991 Second Draft Operation and Maintenance Manual" submitted by Manville. The O&M Manual provides a concise summary of O&M activities to be performed at the site in accordance with the requirements of the Consent Decree and Revised Amended Remedial Work Plan.

V. SUMMARY OF FIVE-YEAR REVIEW STATUS

Consistent with the requirements of OSWER Directive 9355.7-02 (Structure and Components of Five-Year Reviews, May

23, 1991), five-year reviews are appropriate at the Johns-Manville Site. The Directive provides that U.S. EPA will conduct statutory five-year reviews (Statutory Reviews) at sites where, upon attainment of ROD cleanup levels, hazardous substances remaining on site will not allow for unlimited use and unrestricted exposure.

This Site will be subject to a five-year review in 1996. Based on the five-year review, U.S. EPA, in consultation with the State of Illinois, will determine whether human health and the environment are being protected by the remedial action being implemented. U.S. EPA, in consultation with the State of Illinois, will develop an acceptable and detailed work plan consistent with OSWER Directive 9355.7-02 for the five-year reviews.

VI. PROTECTIVENESS

The completion requirements for this site have been met as specified in OSWER Directive 9320.2-3A. Specifically, confirmatory sampling or inspection has verified that the ROD cleanup goals, namely soil cover with vegetation, including all of the elements of the ROD, Revised Amended Remedial Work Plan, and additional work performed under subsequent Work Plan Supplements, have been met. Furthermore,this remedial action has resulted in the effective containment of hazardous substances, pollutants, and contaminants above health-based levels.

Remaining activities to be performed are soil cover inspection and monitoring and groundwater, surface water, and air monitoring, which are outlined in the Revised Amended Remedial Work Plan and Operation and Maintenance Manual for the Johns-Manville site. Contingency plans have been or are required to be developed for each of these sampling programs to ensure that, in the future: 1) no asbestos-containing material reaches the surface of the cover and becomes releasable to the air, 2) no asbestos-containing sludge is dredged from the wastewater treatment system, and 3) appropriate remedial action will be taken if contaminant concentrations that would pose a threat to public health and the environment are detected in the ground water or surface water. A bibliography of all reports relevant to the completion of this site under the Superfund program is attached. The level of protectiveness achieved by Manville's remediation of the site should be maintained by deed restictions that prohibit the disturbance of the covered areas. Such deed restrictions are presently being pursued with Manville.

APPROVED BY:

Valdas V. Adamkus 12/31/91.

Valdas V. Adamkus Date
Regional Administrator

DISAPPROVED BY:

Valdas V. Adamkus Date
Regional Administrator

BAK
for RK
12/30/91

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